Our ref: KON-1822 Client's ref: P-6220-001-0000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: A. NAKAJIMA, et al	:	Art Unit: 2873
Serial No. : 10/658,253	:	
Filed : September 9, 2003	:	Examiner: T. Chea
Title : SILVER SALT PHOTOTHERMO-GRAPHIC DRY IMAGING MATERIAL	:	

DECLARATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

S i r:

I, Akihisa Nakajima, hereby declare and say as follows:

1. I am one of the inventor's in the above-identified patent Application. I also previously executed a Declaration on March 22, 2005 in this Application.

2. I received a Master's degree in synthetic chemistry from Osaka University in March 1987. Since April of 1987, I have been employed by Konica Corporation (now Konica Minolta Medical & Graphic, Inc.), the Assignee of the above-identified patent Application. During my employment at Konica, I engaged in the research and development of supports for photothermographic imaging materials.

3. I am aware that the above-identified patent Application has been rejected based on Sampei (US 6,190,854). Tests have been performed and are reported herein to demonstrate that pearl polymerization does not make beads of copolymer from the monomer mixtures of Sampei. Tests were also performed to demonstrate that these same monomer mixtures, when copolymerized by a solution polymerization method, result in copolymers that need further treatments before they could be used in image material and do not form beads. These tests have been performed either by myself or under my direct supervision and control.

4. Twenty samples were prepared for evaluation. Monomer mixtures FS-1 through FS-10 in Table 1 at col. 19 of Sampei were reacted in both a pearl polymerization method and a solution polymerization method. As previously noted, monomer mixtures FS-5 and FS-6 are considered to be similar to the present Invention.

5. Ten samples, FS-1 through FS-10, were reacted in a pearl polymerization process as described on page 52 of this Application. Namely, each monomer and the amount of each monomer as listed in Table 1 of Sampei were mixed together so that the total weight of the monomers was 62.45 g for each of the ten mixtures, FS-1 through FS-10. Then, to each of the ten mixtures, lauryl peroxide (a copolymerization initiator) was added in an amount to result in a concentration of 1.33 mol % based on the monomers in the mixture. The initiator was mixed into and dissolved in the mixture. The resulting monomer mixture were then placed in a dropping funnel. Then, 187.5 ml of water, 3.75 g of polyvinyl pyrrolidone, and 4.1 g of sodium chloride were added to and mixed in a 0.5 liter round bottom flask fitted with a thermometer, a reflux cooling

pipe, a nitrogen inlet hole and a stirring blade (being a crescent wing at a blade diameter of 5 cm). This mixture was completely dissolved while mixing and bubbling in nitrogen. Then, the monomer mixture was dropped from the dropping funnel into the flask. The monomer mixture had an oily appearance and appeared as oil droplets in the flask. Stirring of the flask contents was continued until confirmation that the oil droplets were stable at a size of about 1 mm during stirring. Then, the interior temperature of the flask was raised to about 65°C and polymerization started. For the first 1.5 hours, oil droplets remained stable during stirring, however, for the last half hour, between 1.5 and 2 hours, the oil droplets started to adhere to the stirring blades. Then, to complete the polymerization process, the contents of the flask were heated to 80°C while stirring, as described on page 17, lines 18-21 and Tables 1-a and 1-b on pages 55 and 56 of this Application. This caused the oil droplets to disappear and an oil layer to form. The oil layer adhered to the stirring blades as a lump. Thus, no polymer beads were obtained and it was impossible to recover the resulting polymer. The same problems

occurred in each of the ten samples prepared from the monomer mixture of FS-1 to FS-10 of Sampei.

6. The results of pearl polymerization of mixtures FS-1 to FS-10 demonstrate that pearl polymerization does not work for these monomer mixtures of Sampei. In my opinion, the monomer mixtures of Sampei did not form beads of copolymer because fluorine content of the monomers was outside of Claim 1 of this Application.

7. Ten additional Samples were made by a solution polymerization process using the monomer mixtures of FS-1 to FS-10. Solution polymerization was chosen because it was considered to be the most common method for polymerization. I note that Sampei does not specifically recite what polymerization process was employed. The same monomer mixture as above was made, i.e. 62.45 g of the monomers in the percent listed in Table 1 of Sampei were mixed and the initiator, lauryl peroxide, was then mixed in an amount to result in 1.33 mol % base on monomers. The round bottom flask was equipped as before with a thermometer, reflux cooling pipes, nitrogen inlet and stirring blade,

however, only 187.5 ml of methyl ethyl ketone was added to the flask and the monomer mixture was then added to the flask. With stirring, the contents of the flask were heated to 60°C for two hours and then 80°C for two hours to complete the copolymerization.

8. For each mixture, FS-1 to FS-10, the copolymer formed from this process was not in the form of beads and the copolymer was sticky. Upon quantitative analysis employing high speed liquid chromatography, it was found that 15-20% of the monomer remained unreacted. The copolymer had to be purified to separate the unreacted monomer from the copolymer prior to use in an imaging material.

9. These tests demonstrate that the monomer mixtures of Sampei can be polymerized by solution polymerization but not by pearl polymerization. Furthermore, they demonstrate the criticality of the monomer mixture of the present Invention with pearl polymerization compared to the monomer mixture of Sampei.

10. These tests should also be compared to the copolymer beads made by a pearl polymerization as taught in Example 1 of this Application. As recited on page 53 of this Application, polymer beads are formed by way of the pearl polymerization process.

It is declared by undersigned that all statements made herein of undersigned's own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the U.S. Code; and that such willful false statements may jeopardize the validity of this Application or any patent issuing thereon.

AKIHISA NAKAJIMA
Akihisa Nakajima

Dated: This 17 day of August, 2005.

DCL/mr